

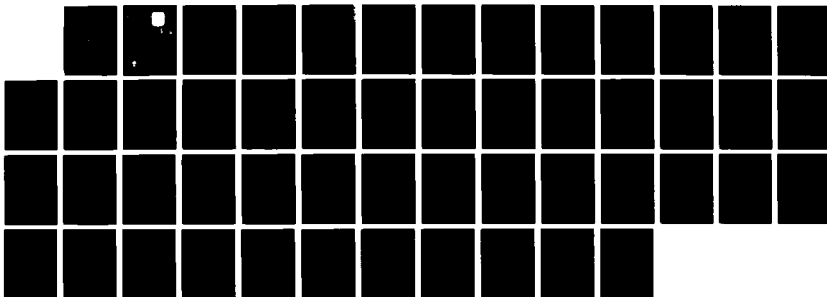
AO-A102 924

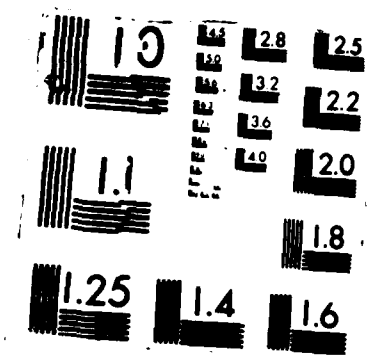
OPERATIONAL AND ORGANIZATIONAL PLAN FOR AMBULANCE TRAIN 1/1
USE FOR MEDICAL EVACUATION OF US FORCES IN EUROPE(U)
ARMY WAR COLL CARLISLE BARRACKS PA D R VOSS 23 MAR 07

UNCLASSIFIED

F/G 13/6

NL





STUDY
PROJECT

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Department of Defense or any of its agencies. This document may not be released for open publication until it has been cleared by the appropriate military service or government agency.

DTIC
ELECTE
AUG 06 1987
S D

OPERATIONAL AND ORGANIZATIONAL
PLAN FOR AMBULANCE TRAIN USE FOR
MEDICAL EVACUATION OF U.S. FORCES IN EUROPE

BY

LIEUTENANT COLONEL DANIEL R. VOSS

DISTRIBUTION STATEMENT A: Approved for public
release; distribution is unlimited

23 MARCH 1987



U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

AD-A182 924

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. A182 924	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Operational and Organizational Plan for Ambulance Train Use for Medical Evacuation of U.S. Forces in Europe		5. TYPE OF REPORT & PERIOD COVERED Individual Study Project
7. AUTHOR(s) LTC Daniel R. Voss		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army War College Carlisle Barracks, PA 17013-5050		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Same		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 23 March 1987
		13. NUMBER OF PAGES 47
		15. SECURITY CLASS. (of this report)
		15a. DECLASSIFICATION, DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A critical need exists for a more efficient casualty evacuation system to medically evacuate the expected numbers of casualties on a modern European battlefield. All estimates from casualty generation models for a European scenario indicate there is a tremendous shortfall in casualty evacuation and treatment capability. This deficiency has been recognized since the early 1980's, and has been studied extensively. Ambulance Train use has been recognized as a viable alternative to supplement current air and motorized evacuation		

(Cont)

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

assets to help overcome this shortfall. A Program Decision Increment Package has been developed and funded for train car conversion kits. These kits will convert German Bundesbahn coach and baggage cars into patient cars and treatment cars. This concept relies on Host Nation Support for the operation and maintenance of the trains themselves. This car conversion alternative was chosen because special ambulance car construction and maintenance were cost prohibitive in these budget-constrained times. Data was gathered using a literature search, analysis of casualty generation models, and through discussions with DA Surgeon General and European Medical command officials. This study then resulted in the development of an initial Organizational and Operational Plan and notional TOE for Ambulance Trains in Europe. After critical review by the Surgeon General and Medical Command Europe, they should be used as an initial basis and jumping-off point for an integrated casualty evacuation system at the Corps and Theater levels in Europe. Additionally, a refined O&O Plan and TOE should be developed to provide a more complete structuring in line with the Concept Based Requirements System.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

USAWC MILITARY STUDIES PROGRAM PAPER

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Department of Defense or any of its agencies. This document may not be released for open publication until it has been cleared by the appropriate military service or government agency.

OPERATIONAL AND ORGANIZATIONAL
PLAN FOR AMBULANCE TRAIN USE FOR
MEDICAL EVACUATION OF U.S. FORCES IN EUROPE

Individual Study Project

by

Lieutenant Colonel Daniel R. Voss

Colonel Len Hardy, FA
Project Adviser

US Army War College
Carlisle Barracks, Pennsylvania 17013
23 March 1987

**DISTRIBUTION STATEMENT A: Approved for public
release; distribution is unlimited.**

ABSTRACT

AUTHOR: Daniel R. Voss, LTC, MS

TITLE: Operational and Organizational Plan for Ambulance Train
Use for Medical Evacuation of U.S. Forces in Europe

FORMAT: Individual Study Project

DATE: 23 March 1987 **PAGES:** **CLASSIFICATION:** Unclassified

A critical need exists for a more efficient casualty evacuation system to medically evacuate the expected numbers of casualties on a modern European battlefield. All estimates from casualty generation models for a European scenario indicate there is a tremendous shortfall in casualty evacuation and treatment capability.) This deficiency has been recognized since the early 1980's, and has been studied extensively. Ambulance Train use has been recognized as a viable alternative to supplement current air and motorized evacuation assets to help overcome this shortfall. A Program Decision Increment Package has been developed and funded for train car conversion kits. These kits will convert German Bundesbahn coach and baggage cars into patient cars and treatment cars. This concept relies on Host Nation Support for the operation and maintenance of the trains themselves. This car conversion alternative was chosen because special ambulance car construction and maintenance were cost prohibitive in these budget-constrained times. Data was gathered using a literature search, analysis of casualty generation models, and through discussions with DA Surgeon General and European Medical command officials. This study then resulted in the development of an initial Organizational and Operational plan and notional TOE for Ambulance Trains in Europe. After critical review by the Surgeon General and Medical Command Europe, they should be used as an initial basis and jumping-off point for an integrated casualty evacuation system at the Corps and Theater levels in Europe. Additionally, a refined O & O plan and TOE should be developed to provide a more complete structuring in line with the Concept-Based Requirements System.

TABLE OF CONTENTS

	<u>Page</u>
Abstract	ii
Chapter I. Introduction	1
Background	1
Statement of Problem	3
II. Discussion	7
Organizational Structure	7
Doctrinal Foundation	8
Force Structure/Modernization	9
III. Operational and Organizational (O & O)	
Concept Plan for Employment of Ambulance Trains in Europe	11
Purpose	11
Threat	12
Operational Plans	12
Organizational Plans	15
Host Nation Support Impacts	16
Personnel Impacts	17
Training Impacts	17
Logistics Impacts	19
IV. Conclusions and Recommendations	22
Conclusions	22
Recommendations	22
Bibliography	24
Appendix 1	30
Distribution	

RE: Classified References, Distribution
 Unlimited
 No change in the distribution statement per
 Ms. Mowery, Army War College, Library



Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>per call</i>	
Distribution /	
Availability Codes	
Dist	Availability of Special
A-1	

CHAPTER I

Introduction

Background

The development and use of Ambulance Trains date back to the U.S. Civil War. The tactics of that era and the large number of casualties generated in a single battle necessitated moving large numbers of casualties rapidly to a point of medical treatment or from there to long-term hospitalization.¹ Initially, regular box cars were utilized but as the Civil War wore on specialized hospital cars were manufactured, with beefed up suspension systems and provisions for litter racks or bunks for litter patients.² By the end of the Civil War not only were the special hospital cars widely used, but the hospital trains were staffed with surgeons, volunteer nurses and ward personnel.³ In addition, surgery cars were a part of each train, but the medical treatment was limited (it is not well documented on what kind or how much surgery was actually practiced).

Every major conflict in Europe since the mid-1860's, and in Africa during the Boer War, have relied on Ambulance Trains to clear the battlefield, and transport casualties between hospitals for long-term treatment and recovery.⁴ The hundreds of thousands of casualties generated in World War I and II again relied heavily on Ambulance Trains to move patients.⁵ In World War II, from D-Day until the end of the war, British Ambulance Trains evacuated over 360,000 casualties.⁶ In addition, US Ambulance

Trains in the U.S. evacuated over 45,000 casualties during May of 1945 (peak month within U.S.).⁷ So you can see this was a major effort for rapid evacuation of casualties. The other Allies, especially the Soviet Union, relied almost exclusively on Ambulance Trains for patient transport because of the lack of road networks and the long distances involved.⁸ In both World Wars Germany relied on Ambulance Trains almost exclusively for casualty movement, because of the lack of or diversion of other transport, and the long distances involved.

Today every European nation whether NATO ally or Warsaw Pact member either operates Ambulance Trains during peacetime or has mobilization stocks available.⁹ This is especially true of the USSR which relies heavily on rail transport movement in all segments of its economy and has large medical facilities located next to railroads throughout the country.¹⁰

Today's Ambulance Trains have been greatly improved over those of the past. Heavy suspension systems for patient comfort and blast stability are in use. Kitchen facilities are modern enough to be able to cook special patient diets, not just serve food.¹¹ In addition, the surgery cars are capable of conducting major intricate surgery even when enroute, which is an advancement critical to treat fresh casualties or to treat those who become unstable enroute.¹² West Germany has even developed a prototype surgery car that can operate in a nuclear or chemical environment and withstand the blast over pressure of a tactical nuclear weapon. This particular car has not been further

produced because of the expense of manufacture in peacetime. East and West Germany are the leaders in advance technology in Ambulance Train development, closely followed by the USSR. This development and emphasis is probably because of their nations' reliance on rail systems in all economic areas.

With the advent and reliance on air transport by the U.S., use of the Ambulance Train by our forces is nonexistent today. This also follows the trend of the decline of the US rail system for people transport in the commercial sector. After World War II, the US Army operated Ambulance Trains in the U.S. until the early 1970's, and in Europe until 1974. At that time all Ambulance Train assets were disposed of and the force structure deleted.¹³ As a result, very few personnel are left in either the active or reserve system with any first-hand Ambulance Train operational experience. In fact, train operational capabilities are now completely in the Reserve Component, and that is limited to one brigade-sized unit. Research into the Ambulance Train operating area is most difficult because of the gap of experience and the reliance on historical data that is available. A review/ comparison of Bundeswehr operating data could be used as an additional source in this area.

Problem

All of the casualty generation models for a Central Europe war indicate that there is a tremendous shortfall in casualty evacuation and treatment capability for US personnel, even with

complete air superiority. These casualty generation models input and output are classified, but generalizations can be found in open literature that supports the shortfall conclusions. In addition, a large portion of the medical unit capability is in the Reserve Component forces and is late to arrive within the European theater. This shortfall exists well into the 40 to 50 day range after the start of hostilities; and it is short in the range of thousands of casualties per day that could not be evacuated or would receive little or no medical treatment.¹⁴ This capability shortfall has been recognized since the early 1980's and studied extensively. Ambulance Train use has been recognized as a viable alternative to help overcome this shortfall in Europe. A Program Decision Increment Package (PDIP) was developed and funded in FY 86. The PDIP is for train car conversion kits to convert German Bundesbahn coach cars into patient cars and minor surgery/treatment cars. This car conversion alternative was chosen because the construction of special ambulance cars and their maintenance were cost prohibitive in these budget-restricted times.¹⁵

At the present time a determination of the total Ambulance Train conversion kit requirement or its allocation has not been conducted. The current PDIP is sufficient to purchase and install enough conversion kits for 23 cars (4 trains of 5 cars each and 3 cars in reserve), but there is no provision for any treatment equipment (sets, kits and outfits) or medical supplies. In addition, an Operational and Organizational (O & O) plan and

force structure (Table of Organization and Equipment - TOE) for Ambulance Trains do not exist. The initiative to date has been aimed at getting the resources to start the buy for the equipment and then develop the rest of the capability in the outyears.

This whole alternative to casualty evacuation is predicated heavily on Host Nation Support (HNS) to operate the Ambulance Trains in wartime (with US personnel staffing the patient cars) and for HNS to maintain the equipment in both peace and war. This assumes HNS capabilities are sufficient to meet their needs as well as US requirements, and that they will live up to the HNS agreements yet to be fully developed and approved.

The thrust of this paper is to assist the USAREUR Surgeon and the Army Surgeon General in getting a fielded Ambulance Train evacuation system and fill in some of the gaps to this overall plan by developing a proposed O & O plan and TOE (with peacetime staffing) for Ambulance Trains. This will allow joint action by the USAREUR Surgeon and the Army Surgeon General to get this project underway and end up with a valid O & O plan and TOE.

ENDNOTES

1. Abdell, George, History of Railroads in the Civil War, p. 79.
2. Plumridge, John H., LTC, Hospital Ships and Ambulance Trains, p. 84.
3. Ibid., p. 85.
4. Ibid., pp. 86-97; 173-174.
5. Ibid., pp. 98-124.
6. Ibid., p. 141; 154-155.
7. Holland, Maj., Department of the Army Office of the Surgeon General Information Paper. Subject: Ambulance Trains, p. 2.
8. Plumridge, p. 144.
9. AFMIC Report, Voyenno-Meditainskiy Zhurnal 75, No. 9, 7-10. Utilization of Mathematical methods in Planning the Work of Ambulance Transports (USSR), pp. 8-10.
10. AFMIC Report, Zoravookhraneniye Kaeakhstana (Alma ATA) 84, No. 5, 75-76. A Veteran of Phthisiatrics (USSR), p. 1.
11. U.S. Department of the Army, 30th Medical Group, REFORGER 1986 After-Action Report. Section III.
12. AFMIC Report, 2227007982. 08 MAR 82/0203, 2 pp. Notation of Medical Train of the Chinese People's Liberation Army Capable of Providing Emergency Surgery. (People's Republic of China), p. 1.
13. Holland, p. 2.
14. 30th Medical Group, Section III.
15. Program Decision Increment Package (PDIP). PDIP 897L: M-Day MED CAP, p. 3553.

CHAPTER II

Discussion

Organizational Structure

Any Ambulance Train System in Europe, including England, has to take into account the existing HNS agreements of treating any allied soldier in any nation's hospital system. Primary responsibility of treatment remains with each nation to treat their own casualties in their medical facilities as much as practical. NATO/HNS agreements do allow treating any casualty at the nearest medical facility when necessary. This also does not take into account treatment of civilian casualties at these same medical facilities. From this kind of a casualty treatment system, the HNS capability more than likely will not be able to support the US casualty evacuation and treatment requirements.

The proposed Ambulance Train System then must be extensive enough to handle most if not all the expected US casualties. Medical planners anticipate Ambulance Trains being Corps and Echelons Above Corps (EAC) assets, with control being under the Theater Medical Commander and employment on an area basis as current medical doctrine calls for in theater medical support.

Staffing and equipment needs should come from the old TOE 8-520 with some updating because of equipment changes and HNS train operation and maintenance. As a minimum, however, physicians, nurses, ward personnel, and patient administration and medical supply personnel need to make up the train staff.² In

peacetime, it will probably not be feasible to have fully staffed Ambulance Train units. Ambulance Train units staffed at the Cadre level would be feasible, and should be developed and deployed to Europe. If that is not possible initially due to personnel ceiling or budgetary constraints, personnel should be designated with augmentee orders and receive training in Ambulance Train operations until Ambulance Train units are authorized and deployed. This would apply to personnel stationed both in CONUS and Europe.

Doctrinal Foundation

An Ambulance Train System in Europe would follow existing theater medical support doctrine, and would become another alternate means of evacuation and enroute treatment of casualties.

At the Corps level, command and control relationships will have to be worked out. If the Ambulance Train is to be a Corps medical asset, it will have to be controlled by the Corps Medical Group or Brigade. Current medical regulating doctrine would apply by patient and Ambulance Train priority/allocation being determined through medical regulatory channels, with higher level units supporting and reconstituting lower level units, i.e, EAC to Corps and Corps to Division areas.

Force Structure/Modernization

Force structure requirements to develop a core cadre of trained and organized personnel to staff Ambulance Trains have not been initiated by medical planners. In addition, current medical equipment although adequate is not specifically designed for train use. As determined during REFORGER 86, many ad hoc modifications were necessary to make the medical equipment work on a train, i.e., transformers to change 220V to 110V for medical equipment, medical chests and water can racks modified to fit metric storage spaces, patient loading ramps, and bed linen and blankets fitting metric cots and litters.³ Medical planners as well as combat developers need to initiate equipment upgrades or starts to properly equip Ambulance Trains. The areas of concern range from medical set adequacy, drug storage, water storage, patient personnel effects storage, contaminated waste storage and disposal, standing operating procedures manual to latrine facilities for patients.⁴ In addition, both internal and external train radio/telephone communication is lacking or so inadequate as to be nonfunctional. Some internal phones do exist but only between special cars (surgery, minor treatment, and the kitchen cars), and none goes to the engineer in the locomotive.⁵ To locate staff or patient personnel you must walk up and down the train, or wait until the next stop to talk to the engineer.

The issues under this heading will be covered in more detail in the draft O & O plan.

ENDNOTES

1. U.S. Department of the Army. Table of Organization and Equipment No. 8-520E: Ambulance Train, Rail. pp. 8-10.

2. U.S. Department of the Army, 30th Medical Group.
REFORGER 1986 After-Action Report, Section III.

3. Ibid.

4. Ibid.

5. Ibid.

CHAPTER III

Operational and Organizational (O & O) Concept Plan for Employment of Ambulance Trains in Europe

Purpose

A critical need exists for a more efficient casualty evacuation system to transport the expected numbers of casualties on a modern European battlefield. All estimates from casualty generation models for a European scenario indicate there is a tremendous shortfall in casualty evacuation and treatment capability, even with complete air superiority.¹ This deficiency has been recognized since the early 1980's, and has been studied extensively. Ambulance Train use has been recognized as a viable alternative to help overcome this shortfall in Europe. A Program Decision Increment Package (PDIP) was developed by USAREUR Surgeon and the Army Surgeon General and funded in FY 86. The PDIP is for train car conversion kits to convert German Bundesbahn coach and baggage cars into patient cars and minor surgery/treatment cars. This car conversion alternative was chosen because special ambulance car construction and maintenance were cost prohibitive in these budget restricted times. Specific deficiencies in regard to combat support effectiveness, survivability and logistic support of these Ambulance Trains are listed in the current PDIP justification documents.²

Threat

Soviet doctrine's emphasis on combined arms operations, and the technological development of modern battlefield weapons with increased accuracy and lethality lead to increased numbers and wound severity in casualties. The Soviets also possess unparalleled chemical and biological warfare capabilities to create a toxic operational environment. There are indications that the Soviets have identified our casualty care shortfalls and understand that "return to duty" soldiers will be the only significant reserve manpower pool during the early days of any large conflict in Europe. If the Soviets can exploit this weakness, by adopting a policy of creating casualties, they will have a distinct advantage and good combat multipliers.

Operational Plans

The Health Service Support to Airland Battle (HSSALB) doctrine and early concepts of Army 21 envision a heavy reliance on rapid casualty evacuation. This provides early triage and lifesaving care and earlier definitive medical care, plus rapid clearing of the battlefield of casualties. The big advantage being a early return to duty of treated soldiers. The introduction of Ambulance Trains will enhance this evacuation and treatment concept and provide better medical support to combat operations.

Ambulance Trains will become an essential part of the overall evacuation capability. Combined with other ground evacuation and air evacuation capabilities these assets will provide a

casualty evacuation system that is efficient and responsive. This capability will ensure continuous evacuation even under conditions of poor visibility and severe weather conditions. This is especially pertinent in winter operations in Europe since frequently air and motorized evacuation assets are limited or can not operate. Trains in Europe have historically been responsive in all weather conditions and have been able to sustain themselves and survive in combat because of rapid rail line repair. German Territorial Army (GTA) personnel have assured the US Forces the rail system will remain operational because their country relies so heavily on rail transport.

The German officials also indicate that our proposed Ambulance Train System is HNS sustainable. They have enough cars, engines, and train operators to meet our needs. The actual routing of the Ambulance trains will be controlled and determined by HNS. They can ensure that our desired stops/destinations and times of arrival will be controlled by the medical command to which the Ambulance Train belongs. The GTA will be operating their own rail evacuation system and have indicated they will plan our train schedules in as much detail as theirs.

The Ambulance Train operational capability will be able to satisfy many of the medical treatment/support elements of current and proposed medical doctrine. Patient evacuation and treatment will enhance the patients' early recovery potential. Enroute treatment will incorporate the latest field medical diagnostic and treatment capabilities. Limited laboratory diagnostic tests

will be able to be conducted to include: blood counts, blood and urine chemistries, bacterial diagnosis, and limited I.V. fluids preparation. The enroute treatment capability will be enhanced to the level of doing major lifesaving treatments. This will include: general lifesaving surgery, wound and disease treatment, x-ray capability, and limited orthopedic care and casting capability. Caution should be noted in the treatment area however, because vibration of patient and medical personnel by train movement will limit some of the procedures mentioned above while enroute. The treatment car will not be an operating room but can still provide a great deal more enroute care capability than we are now able to accomplish on motorized and air evacuation assets.

The Ambulance train will be capable of performing the tasks discussed in the following functional areas:

1. Command and Control (C²). The Ambulance Train can supplement the medical C² effort by providing a link for patient regulating, within Corps, theater or between them. The collection and dissemination of intelligence information and medical information will be greatly enhanced. Rapid shifting of evacuation capabilities from Corps throughout the theater area based on combat operations will also be greatly improved.

2. Communications. With an AM radio capability Ambulance Trains can greatly assist in patient regulating and medical support operations. They can provide a rapid mobile secure voice and data communications link capability.

3. Reconstitution. Ambulance Trains provide a limited personnel and medical equipment reconstitution pool for both Corps and theater. In addition, they are a rapid and flexible reconstitution transport system anywhere in the Corps and theater areas. This results in an enhanced ability to rapidly reconstitute critical medical assets in battle.

Organizational Plans

Ambulance Train units are integral to the Corps and theater casualty evacuation/treatment system. Their improved technology, flexibility, and rapid movement are sufficient to perform independent sustained casualty evacuation operations. The organizational design of Ambulance Train units can not be finalized until decisions are made about their existence in peacetime, the total number required, the support requirements identified, new equipment requirements initiated or existing equipment modified, and capabilities demonstrated.

However, the Ambulance Trains will supplement the Air Ambulance units, Evacuation Battalions, Ambulance Companies, and Bus Evacuation units. The optimum mix of units can not be finalized until there is agreement on the total evacuation asset requirement in Europe. For planning purposes, it is currently envisioned that the Ambulance Train units will be assigned to Corps and Theater level Medical Commands both in peacetime and war.

Tables of Organization and Equipment (TOE) which require integration of Ambulance Train units include the following type

units: (Attached at Appendix 1 is a notional TOE which should be used as a point of departure for development of Ambulance Train unit TOE's and MTOE's.)

1. EAC. Ambulance Train units should be an integral part of or subordinate units to Theater Medical Brigades, Medical Commands, and Medical Commands in Field Armies.

2. Corps. Ambulance Train units should be subordinate units to Corps Medical Brigades and Medical Groups.

3. Division. Ambulance Train units under this concept would not be a division asset but could operate extensively in the divisional area while remaining under Corps or higher level command.

This notional TOE is developed on the staffing guides found in AR 570-2, the basis of issue plans in AR 71-2 and REFORGER experiences in operating Ambulance Trains.

4. Miscellaneous. Additional requirements for Ambulance Train units will include the training base, table of distribution and allowances, unit assemblage listings, and special medical operational support requirements.

Host Nation Support Impacts

Firm HNS agreements have to be developed and approved for both peacetime and wartime operations. Since train operation, maintenance, and equipment are HNS provided, it is essential that requirements and priorities are spelled out in great detail, approved, and exercised. This USAREUR Medical Command task should be initiated as soon as possible and be developed simultaneously with the organizational and equipment requirements.

Personnel Impacts

A goal of casualty evacuation by Ambulance Train will be to make the casualty evacuation system more efficient and less manpower-intensive per casualty evacuated. Much of this savings can be gained because HNS is providing for the operation and maintenance of the trains. In addition, medical personnel will be able to care for more patients because of the size, configuration, and speed of ambulance trains. Emphasis will be on simplicity and ease of operation and maintenance. This goal will be accomplished through technological advances and refinements in the man-machine interface by using manprint considerations in all areas of design. The overall cost effectiveness of this system will depend on the mix of medical evacuation units (rail, air, and motorized).

Personnel issues will continually be addressed during development and fielding of these units. Every effort will be made to ensure that soldier requirements to operate and maintain Ambulance Trains will not be increased unnecessarily. Total manning requirements of casualty evacuation units may be reduced as a result of the employment of these units and reliance on HNS.

Training Impacts

Training doctrine should be designed, validated, and administered for medical care and support personnel in accordance with U.S. Army Training and Doctrine Command (TRADOC)/US Army Material Command (AMC)/US Army Forces Command (FORSCOM)/Health

Services Command (HSC)/USAREUR Command policies and agreements. In addition HNS agreement provisions should be made to develop, adopt, and exercise GTA policies, procedures, and agreements.

Medical care operators and support personnel training should be structured to meet the training requirements as determined by the final qualitative and quantitative personnel requirements information (FQQPRI) process. It is important that formal individual and unit training occur to develop a common user proficiency and base of knowledge. As a result of this concept, units should receive mission-ready medical care personnel. Sustainment of individual, and unit skills or tasks should be conducted by USAREUR and the Academy of Health Sciences.

Devices such as train conversion kits and ambulance car mock-ups will be necessary to provide entry level MOS training, and supervisory sustainment training. Effective fielding of Ambulance Trains requires these training devices, as well as training procedures be developed in the early phases of procurement and fielding.

New MOS's for medical care and support personnel will not be necessary. This system can be treated on the same basis as any new equipment training (NET) program. Initial training should be conducted by respective Army institutional service centers and schools. Commanders and staffs of the units to receive Ambulance Train units should be trained in the employment of these new units through the NETS program.

Approximately six (6) hours of formal Ambulance Train medical training should be incorporated into the curricula at the initial entry (91A10, 91B10) courses, 91B20, 91C, medical BNCOES, and medical ANCOES to ensure personnel are proficient in handling and treating patients on Ambulance Trains. Sustainment proficiency training should be provided to USAREUR assigned medical personnel by the USAREUR Surgeon on an annual basis to ensure there is adequate proficiency.

All new mission profiles and related tasks generated by Ambulance Train units should be incorporated into the appropriate soldier's manuals, job books, soldier's guides, skill qualification tests, medical training manuals, and Army training evaluation programs. As the Ambulance Train unit concept matures, operational doctrine should be modified as necessary to incorporate the Ambulance Train's unique capabilities. It is envisioned that the doctrine and tactics for employment of Ambulance Train units should be taught at the institutional level as a part of Army service school curricula. Unit training will be aimed at developing maximum effectiveness in employment and maintaining cadre proficiency.

Logistics Impact

The maintenance impact will be minimized and limited to medical equipment and medical supply items because of HNS for the operation and maintenance of the train itself. The medical maintenance system will remain the same as that for current medical equipment.

The supply system should utilize state-of-the-art technology to provide rapid supply support. Direct support and depot-level support units should stock modular replacement units, combat spares, direct exchange items, demand supported items, and float end items.

ENDNOTES

1. U.S. Department of the Army, 30th Medical Group, REFORGER 1986 After-Action Report, Section III.

2. Program Decision Increment Package (PDIP). PDIP 897L: M-Day MED CAP, p. 3553.

CHAPTER IV

Conclusions and Recommendations

Conclusions

Casualties (based on generation models) versus evacuation/treatment asset shortfalls in Europe lead to the conclusive need to add Ambulance Train capability to supplement the existing casualty evacuation system. This capability meets the doctrinal and operational concepts of Health Service Support to Airland Battle and Army 21 by providing a cost-effective, efficient evacuation system that has the potential of meeting the existing evacuation capability shortfall and moving the large numbers of casualties expected in any European conflict.

The O & O plan and notional TOE for Ambulance Train units provide an initial basis and jumping-off point for an integrated casualty evacuation system at the Corps and Theater levels.

Recommendations

Recommend that the O & O plan for Ambulance Train units be used by USAREUR Medical Command, the Surgeon General's Office, and Health Services Command as a starting point for the employment, fielding, and operation of Ambulance Train units.

Recommend that detailed HNS agreements be developed, approved, and implemented as rapidly as possible with the Federal Republic of Germany. If this aspect is not vigorously pursued, the whole concept may not work because so much of the system depends on HNS.

Recommend that the notional TOE for ambulance train units be used as an initial basis for USAREUR, SGO, and HSC analysis and adoption.

BIBLIOGRAPHY

BOOKS

1. Abdill, George, Civil War Trains. New York: Bonanza Press, 1961.
2. Nock, O. S. Britain's Railway at War 1939-1945. London: 1971. (HE 3017 N6)
3. Plumridge, John H. Lt. Colonel, Hospital Ships and Ambulance Trains. London: Seeley, Service and Co., 1975. (UM300.2 P5)

ARMY MANUALS

1. U.S. Department of the Army. Technical Manual 55-2020: Railway Car Hospital Unit (Ambulance). Washington: June 1953.
2. U.S. Department of the Army. Technical Manual 55-2019: Railway Car Kitchen Troop. Washington: January 1953.
3. U.S. Department of the Army. Field Manual 8-10: Health Service Support in a Theater of Operations. Washington: October 1978.
4. U.S. Department of the Army. Field Manual 8-35: Transportation of the Sick and Wounded. Washington: February 1945.
5. U.S. Department of the Army. Field Manual 8-35: Transportation of the Sick and Wounded. Washington: December 1955.
6. U.S. Department of the Army. Field Manual 55-20: Army Rail Transport Operations and Units. Washington: June 1974.
7. Army Service Forces, Ninth Service Command 1960 SCU. Hospital Train Unit Guide For Train Duty Personnel. San Francisco: February 1946 (UM300.1 U56 1946 v.1)
8. U.S. Army Transportation Corps. Transportation Corps in FY 1954, A Summary of Major Events and Problems (Reports Control Symbol CSHIS-6). Ft. Eustis: 1954. (UC 273 A21 No. 1 c. 2)

Program Decision Increment Package

1. Program Decision Increment Package (PDIP). PDIP 897L: M-Day MED CAP. Washington: U.S. Department of the Army, 24 October 1986.

Table of Organization and Equipment

1. U.S. Department of the Army. Table of Organization and Equipment No. 8-520A: Hospital Train. Washington: 3 June 1951.
2. U.S. Department of the Army. Table of Organization and Equipment No. 8-520: Ambulance Train, Rail. Washington: 18 July 1953.
3. U.S. Department of the Army. Table of Organization and Equipment No. 8-520E: Ambulance Train, Rail. Washington: 7 April 1964.
4. U.S. Department of the Army. Table of Organization and Equipment No. 8-520E, C2: Ambulance Train, Rail. Washington: 15 September 1966.
5. U.S. Department of the Army. Table of Organization and Equipment No. 8-520E, C3: Ambulance Train, Rail. Washington: 1 March 1967.
6. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G: Ambulance Train, Rail. Washington: 31 August 1967.
7. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G, C2: Ambulance Train, Rail. Washington: 20 February 1969.
8. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G, C3: Ambulance Train, Rail. Washington: 29 May 1970.
9. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G, C6: Ambulance Train, Rail. Washington: 1 April 1972.
10. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G, C7: Ambulance Train, Rail. Washington: 1 September 1972.
11. U.S. Department of the Army. Table of Organization and Equipment No. 8-520G, C8: Ambulance Train, Rail. Washington: 1 March 1973.

After-Action Reports

1. U.S. Department of the Army, 30th Medical Group. REFORGER 1986 After-Action Report. Ludwigsburg, Germany: March 1986.

Policies and Letters

1. Binkley, Hubert L., Department of the Army, Office of the Surgeon General Directorate of Plans, Supply, and Operations. Policy No. 40-532-1: Medical Service Ambulance Trains, Ambulance Trains - CONUS. Washington: 15 February 1965.
2. Department of the Army, Office of the Surgeon General Memorandum for Chief, Plans and Operations Division. Subject: Ambulance Trains. Washington: 18 March 1977.
3. Mateer, Charles A. Colonel, Memorandum for General Green. Subject: Ambulance Trains. Washington: 4 March 1977.
4. Pixley, Charles C., Brigadier General, Department of the Army Office of the Surgeon General. Memorandum: Subject: Deletion of Selected TOE. Washington: 25 September 1974.
5. Cutting, Robert T., Brigadier General, Department of the Army. Office of the Surgeon General memorandum. Subject: Ambulance Trains and Hospital Ships. Washington: 8 December 1981.
6. Holland, Major, Department of the Army Office of the Surgeon General Information Paper. Subject: Ambulance Trains. Washington: 6 February 1980.
7. Luehrs, William C., Colonel, Department of the Army Office of the Surgeon General. Subject: Ambulance Trains. Washington: 28 January 1971.
8. Henshaw, Phillip B., Colonel, Department of the Army, U.S. Army Material Command. Subject: Ambulance Trains. Washington: 7 May 1971.
9. United Press International, Command Information News Release. Ambulance Trains. Washington: 21 May 1971.

ARMED FORCES MEDICAL INTELLIGENCE CENTER REPORTS (AFMIC)

1. AFMIC Report, Voenno-Meditsinskiy Zhurnal 75, No. 9, 7-10. Utilization of Mathematical Methods in Planning the Work of Ambulance Transports (USSR). Ft, Detrick: December 1974.

2. AFMIC Report, T.G., Technische Gemeinschaft 74, Vol. 22, no. 2, 27. Mobile VEB Diesel Electro Aggregates of 50 and 75 KVA and speeds up to 80 KM/H for Supplying Power to Ambulances and X-Ray Trains, Transmission Cars for Radio and Television and Repair and assembly equipment in construction, Agriculture (East Germany). Ft. Detrick: 1974.
3. AFMIC Report, Legenkoerier 81, Vol. 31, No. 2, 14-15. The 752 General Hospital: Hollands Largest Waiting Hospital (Netherlands). Ft. Detrick: February 1981.
4. AFMIC Report, The Second Conference of the Society of Military Medicine of the German Democratic Republic, Berlin, December 14 to 16, 1978 78, 2PP. The Task of the German Red Cross of the GDR on the Organization of Medical and Shock Victims (East Germany). Ft. Detrick: December 1978.
5. AFMIC Report, ATCH-2201541778 31 October 1978, 5 PP. Stretcher Mounts for Ambulances (West Germany). Ft. Detrick: April 1978.
6. AFMIC Report, VOX (Brussels) 81, No. 28, 6. Festima Lente 81 Staff Exercise (Belgium). Ft. Detrick: August 1981.
7. AFMIC Report, 2227007982. 08MAR 82/0203, 2 PP. Notation of Medical Train of the Chinese People's Liberation Army Capable of Providing Emergency Surgery. (People's Republic of China). Ft. Detrick: December 1981.
8. AFMIC Report, Legerkoernier 85, Vol. 35, No. 6, 4-7. Ambulance Train: Safest Removal of Casualties (Netherlands). Ft. Detrick: June 1985.
9. AFMIC Report, ZDRAVOOKHRANENIYE KAEAKHSTANA (Alma ATA) 84, No. 5, 75-76. A Veteran of Phthisiatrics (USSR). Ft. Detrick: 1984.
10. AFMIC Report, Interarma Military News (changed to CODEN INNEE) 85, Vol. 17, No. 1, 8-10. A Ready Intervention Military Rail Convoy and a Helicopter Carried Surgery Nucleus Debut in Exercise Arezzo 84 (Italy). Ft. Detrick: January 1985.

11. AFMIC Report, 2 326 5031 87. IIR 2 326 5031 87/Locomotive and Hospital Train Storage (text: Confidential), (East Germany) Ft. Detrick: 1987.
12. AFMIC Report, 6901019882. 30MAR82/1631, 2 p. Soviet Military Medical Laboratory Railroad Car in Brest. (text: Secret) (USSR), Ft. Detrick: March 1982.
13. AFMIC Report, USAMIIA Weekly Wire 23-79, USAMIIA-181600Z-JUNE-79. 3-4. PRC Hospital Train. (text: Secret), (China), Ft. Detrick: June 1979.
14. AFMIC Report, FIRDBK3120031381. 22JAN81, 4 pp. Soviet Biological and Chemical Warfare. (text: Secret), (USSR), Ft. Detrick: January 1981.
15. AFMIC Report, 6855020577. 04APR77, 2 pp. Employment of Medical Units. (text: Secret), (South Korea), Ft. Detrick: April 1977.
16. AFMIC Report, COMIPAC-HONOLULU-8210260149. 26OCT82/0149, 5 pp. New Type Medical Train. (text: Secret), (China), Ft. Detrick: October 1982.
17. AFMIC Report, 2 701 0038 87. IIR 2 701 0038 87/PL Produces Wartime Military Rail Traffic Control Computer Program. (text: Secret), (Poland), Ft. Detrick: 1987.
18. AFMIC Report, ATCH-2201246984. 26NOV84, 103 pp. Canadian Forces Medical Services Handbook on Medical Support in a Chemical Environment (Land), A-MD-050-020/PT-000. (text: Confidential), (Canada), Ft. Detrick: November 1984.
19. AFMIC Report, 2201112880. 15DEC80, 4 pp. Surgical Support Exercise for United Kingdom Forces in Germany. (text: Confidential), (West Germany/United Kingdom), Ft. Detrick: December 1980.
20. AFMIC Report, 2326504884. 03MAY84, 7 pp. Romania Army Hospital Trains. (text: Confidential), (Rumania), Ft. Detrick: May 1984.
21. AFMIC Report, 2323506184. 11MAY84/1302, 4 pp. Use of Field X-Ray Machines. (text: Confidential), (Poland), Ft. Detrick: May 1984.

22. AFMIC Report, 6834035180. 06NOV80/1704, 3 pp. Medical Evacuation Railroad Train. (text: Confidential), (West Germany), Ft. Detrick: November 1980.
23. AFMIC Report, 6901067786. 13MAY86/1733, 4 pp. Kiev Moscow Rail Movement. (text: Confidential), (USSR), Ft. Detrick: May 1986.
24. AFMIC Report, 6007011780. JUN80, 9 pp. CCA Activity: Loufushan. (text: Confidential), (China), Ft. Detrick: June 1980.
25. AFMIC Report, SAREA-BL-740608. 74, 30 pp. Casualty Handling Assessment in a Chemical Environment Trial Chace. (text: Confidential), (Canada/United Kingdom), Ft. Detrick: 1974.

Appendix 1

TOE 8-520

TABLE OR ORGANIZATION)
AND EQUIPMENT)
NO. 8-520)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C.

AMBULANCE TRAIN, RAIL

Designation: _____ Ambulance Train (Rail)

Page

Section I. General:

Organization	-----	1
Equipment	-----	
II. Organization (Personnel):		
Distribution	-----	
Recapitulation	-----	
Remarks	-----	
III. Equipment:		
Distribution	-----	
Recapitulation	-----	
Remarks	-----	

SECTION I

GENERAL

ORGANIZATION

1. MISSION. To evacuate patients from hospitals or holding units of the Corps area to the theatre area; between hospitals of the Corps and theatre areas, and from hospitals to aerial and/or water ports of embarkation.

2. ASSIGNMENT. To theater medical command with attachment or operational control at the Corps level medical command.

3. CAPABILITIES. a. At full strength this unit provides enroute medical care for:

(1) 170 litter patients, or

(2) 170 litter patients and 170 ambulatory patients, or

(3) 340 ambulatory patients not requiring litter berth accommodations.

b. At reduced strength this unit provides the above for fifty percent of the stated full strength capability.

c. The capabilities of a Type B organization are the same as those of a full strength organization.

(1) The Type B column adapts this TOE to the lesser requirements for United States military personnel. Vacancies existing in the Type B column are indicative of the types of positions which can be filled by non-United States personnel. The number of non-United States personnel must be determined by the major commander to which the unit is assigned and will depend upon capacity of available personnel to produce, number of shifts, and other local conditions.

(2) Interpreters and translators required when organized under the Type B column will be provided from appropriate teams available to the theater medical commander.

(3) Authorization of United States military personnel shown in the Type B column may be modified by troop basis proponents as required by local area conditions of employment in order to enable the unit to effectively accomplish its mission.

d. Patient treatment capability is based on an Ambulance Train consisting of eight (8) ward cars, one (1) supply/administration/pharmacy car, one (1) kitchen car, and one (1) minor surgery/treatment car. The staffing requirement is based on the staffing guides in AR 570-2, the basis of issue plan in AR 71-2 and REFORGER experiences in operating Ambulance Trains. All the above cars will be Bundesbahn baggage or passenger cars with medical conversion kits, field sets, field kitchen sets, and medical equipment sets. Additional treatment capability for ambulatory patients can be achieved by adding Bundesbahn coach/passenger cars, and providing small medical teams to augment enroute care.

e. This unit is dependent upon Host Nation Support (HNS) for train operation and maintenance.

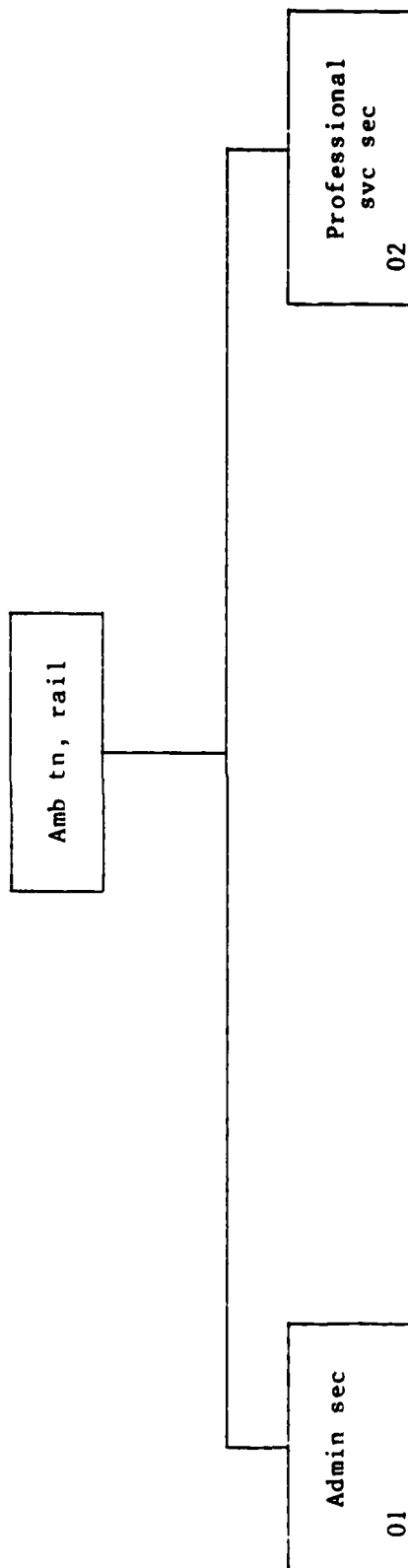
f. This unit is not administratively or logistically self-sufficient, and therefore must be assigned or attached to a medical command capable of supporting it.

g. Patient regulating is coordinated and controlled by the Corps and theater medical regulating staff. Routing of ambulance trains is controlled and coordinated by the Bundesbahn or HNS with medical command coordination and monitoring.

4. ORGANIZATION. The ambulance train, rail, consists of an administrative section and a professional service section.

a. Administrative Section. This section exercises control over the activities of the administrative and professional services of the unit. The Unit Commander, who is a Medical Corps officer, is responsible for the command, administration, training, coordination, and operation of the ambulance train unit. The commander is assisted by a Medical Service Corps Executive officer who is responsible for the administrative and operational aspects of the ambulance train.

AMBULANCE TRAIN, RAIL



b. Professional Services Section. This section includes a Medical Corps officer who provides enroute patient care, and supervises all aspects of enroute medical care and treatment. The head nurse directs the nursing service activities of all medical personnel providing patient care on the train. Enlisted ward personnel perform their assigned duties under the supervision of their respective Wardmasters.

5. BASIS OF ALLOCATION. Five per Corps; and four per theatre medical command.

6. CATEGORY. This unit is designated a Category III unit (Reference Unit Categories, AR 320-5).

7. MOBILITY. Fixed. When this unit is not assigned to and is not operating as an ambulance train, it is immobile and transportation is required for its movement.

EQUIPMENT

1. This table is in accordance with AR 310-series, and, together with documents listed in paragraph 5, is the authority to requisition and issue, in accordance with pertinent Department of the Army directives, all items listed herein unless otherwise indicated.

2. In accordance with pertinent Department of the Army and/or theater documents, units are authorized the following (Definition of terms in accordance with AR 320-5:

a. Basic Load.

b. Prescribed Load.

3. When there appears to be a discrepancy between the allowances shown in Section III, Equipment, strength column and the basis of distribution as indicated in the "Remarks" column, the amount shown in the strength column will govern.

4. Ambulance train conversion kits are authorized to convert Bundesbahn cars so far as they pertain to the allowances covered by this table.

5. Items of clothing, equipment, components of sets and kits, repair parts, accessories, special tools, and allowances of expendable items, as contained in the following publications, are authorized so far as they pertain to the allowances for the organization and/or individuals covered by this table.

a. Regulations.

AR 11-30, Capstone Program
AR 30-1, The Army Food Service Program
AR 40-56, Introduction, Requirements, Determination, and
Publication of New Type Classified Medical Items into
the Department of Defense
AR 40-61, Medical Logistics Policies and Procedures
AR 40-400, Patient Administration
AR 40-538, Property Management during Patient Evacuation
AR 71-2, Basis of Issue Plans (BOIP), Qualitative and
Quantative Personnel Requirements Information (QQPRI).
AR 220-1, Unit Status Reporting
AR 310-1, Publications, Blank Forms and Printing Management
AR 310-31, Management System for Tables of Organization and
Equipment (the TOE System)
AR 310-34, Equipment Authorization and Utilization Policies
and Criteria and Common Tables of Allowances
AR 340-1, Records Management Program
AR 340-2, Maintenance and Disposition of Records in TOE Units
AR 350-1, Army Training
AR 350-38, Training Devices, Policies and Procedures
AR 350-41, Army Forces Training
AR 351-1, Individual Military Education and Training
AR 385-32, Protective Clothing and Equipment
AR 570-2, Manpower Requirements Criteria
AR 570-9, Host Nation Support
AR 611-1, Military Occupational Classification Structure
Development and Implementation
AR 700-23, Supply of Health and Comfort Items
AR 700-84, Issue and Sale of Personal Clothing
AR 725-50, Requisitioning, Receipt, and Issue System
AR 735-5, Basic Policies and Procedures for Property Accounting
AR 735-11, Accounting for Lost, Damaged and Destroyed Property
AR 735-17, Accounting for Library Books
AR 750-1, Army Materiel Maintenance Concepts and Policies
AR 750-43, Test, Measurement and Diagnostic Equipment (TMDE)
AR 755-2, Disposal of Excess, Surplus Foreign Excess, Captures,
and Unwanted Material
AR 755-16, Exchange of Non-excess Personal Property

b. Common Tables of Allowances.

CTA 8-100, Army Medical Department Expendable/Durable Items
CTA 50-900, Clothing and Individual Equipment
CTA 50-909, Field and Garrison Furnishings and Equipment
CTA 50-970, Expendable/Durable Items (Except: Medical, Class V,
Repair Parts and Heraldic Items)

c. Other Publications.

DA PAM 310-17, Joint Interest of Technical Manuals
DA PAM 385-3, Protective Clothing and Equipment
DA PAM 570-557, Staffing Guide for U.S. Army Medical
Department Activities
DA PAM 750-1, Commanders Guide of Preventive Maintenance
Indicators
FM 63-3, Combat Service Support Operations - Corps
SB 3-40, Herbicides, Pest Control Agents, and Disinfectants

5. The abbreviations used herein are in accordance with AR 310-50.

6. Unless otherwise indicated, items of equipment authorized herein are the latest adopted type articles. Priorities of issue and/or issue of substitute items pending availability of later models or in lieu thereof until exhausted, are established by current supply directives.

7. This table contains the minimum essential quantities and types of equipment necessary to accomplish the mission of the unit. When additional equipment is required and is not covered by pertinent equipment authorization documents, approval must be obtained in accordance with procedures established by AR 725-50.

8. Allowances of equipment authorized herein may be decreased or omitted at the direction of the commanders of major commands. When deemed appropriate by these commanders only major components of items authorized will be requisitioned or retained.

9. When assigned military personnel exceeds that authorized in Section II, items of equipment authorized on an individual basis are increased accordingly.

10. Approval for authorization of arms and items of individual equipment for issue to non-military personnel must be obtained through command channels from the theater army commander or the Department of the Army.

TOE 8-520

36

INDEX	PAR LINE	DESIGNATION	ID	BR	MOS	FULL (1)	RE- DUCED (2)	CADRE (4)	TYPE "B" (5)	LT															
										GEN	COL	COL	MAJ	CAPT	LT	WO	E-9	E-8	E-7	E-6	E-5	E-4	E-3	E-2	RMS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
		RECAPITULATION																							
		FULL STRENGTH																							
		OFFICERS																							
			N	AN	66F	1								1											
			N	AN	66H	3								1	2										
			O	MC	60E	1								1											
			O	MC	62A	1							1												
			O	MS	67B	1								1											
			O	MS	67F	1									1										
						8							1	4	3										
		NON COMMISSIONED OFFICERS																							
			E	NC	76J30	1														1					
			E	NC	91C30	1													1						
			E	NC	94F20	1														1					
			E	NC	91C20	3														3					
			E	NC	91B20	3														3					
						10														2	8				
		OTHER ENLISTED																							
			E		71L10	1																1			
			E		76J10	1																1			
			E		91B10	16																8			
			E		94F10	6																3			
						24																13	11		

TABLE OR ORGANIZATION AND EQUIPMENT
SECTION II - ORGANIZATION

TOE 8-520

INDEX		DESIGNATION	ID	BR	MOS	FULL (1)	RE- DUCED (2)	CADRE (4)	TYPE "B" (5)	LT GEN COL	COL	MAJ	CAPT	LT WO	E-9	E-8	E-7	E-6	E-5	E-4	E-3	E-2	RMKS		
PAR	LINE																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
		REDUCED STRENGTH																							
		OFFICERS																							
			N	AN	66H		2							1	1										
			N	AN	66F		1							1											
			O	MS	67B		1							1											
			O	MS	67F		1							1											
							5							3	2										
		NON COMMISSIONED	OFFICERS																						
			E	NC	76J30		1												1						
			E	NC	91C30		1												1						
			E	NC	94F20		1													1					
			E	NC	91C20		3													3					
			E	NC	71G20		1													1					
			E	NC	91B20		1													1					
							8												2	6					
		OTHER ENLISTED																							
			E		91B10		7															3	4		
			E		94F10		4															2	2		
							11															5	6		

TOE 8-520

[illegible]

INDEX

40

SECTION III - EQUIPMENT

TOE 8-520

PAR NO.	LINE ITEM NUMBER	ITEM DESCRIPTION	QUANTITY			RMKS	FOR LOCAL USE
			FULL STRENGTH	REDUCED STRENGTH	TYPE "B" STRENGTH		
1	2	3	4	5	6	7	8
		SRC 08 520 4 00-	1	2	5		
01		ADMINISTRATIVE SECTION					
		DETECTOR KIT CHEMICAL AGENT VGH M8	3	3	3		
		FLASHLIGHT PLASTIC RIGHT ANGLE 2-CELL MINIATURE FLANGE LAMP WATERTIGHT	27	20	27	800	
		BEDDING SET FOREIGN SERVICE AMBULANCE TRAIN PERSONNEL CAR	8	8	8		
		MEDICAL EQUIPMENT SET FOREIGN SERVICE AMBULANCE TRAIN KITCHEN-DINING- STORAGE CAR	1	1	1		
		PISTOL AUTOMATIC CAL .45	3	3	3	RMK	
		RIFLE 5.56MM SEMIAUTOMATIC, M16A1	20	10	20	RMK	
		CLEANER VACUUM UPRIGHT FLOOR BRUSH HAND BRUSH ROUND BRUSH	2	2	2		
		DESK FIELD PLYWOOD 20 7/8 IN W 14 7/16 IN H 15 5/8 IN D	2	2	2		
		DESK FIELD PLYWOOD 22 5/8 IN W 25 7/8 H 14 1/2 IN D	2	2	2		
		FILING CABINET LETTER STEEL GRAY 5 DRAWERS H 28 IN D	3	3	3		
		FOOD PREPARATION AND SERVICE SET 441 COMPONENTS	1	1	1		
		SAFE 2 SHELVES 1 DRAWER 2 COMPARTMENT 26 H 17 W 17 1/2 IN D	3	3	3		
		TYPEWRITER NONPTBL 13 IN PAPER SIZE 42 TO 44 KEYS ELITE TYPE	3	3	3		
		CHARGER RADIAC DETECTOR PP-1578/PD	2	2	2		
	Q20798	RADIACMETER: IM-9 PD	5	5	5		
	Q78282	RADIO SET CONTROL GROUP: AN/GRA-39	1	1	1		
	Q38119	RADIO SET: AN/PRC-47	1	1	1		
	Q90063	RADIO TELETYPE WRITER AN/GAC-46	1	1	1		
	R14154	RANGE OUTFIT FIELD GASOLINE	3	3	3		
	Y34027	WATCH WRIST: NONMAINTAINABLE	14	14	14		
	A79381	ANTENNA GROUP: OE-254 ()/GRC	1	1	1		
	C00601	CHARGER RADIAC DETECTOR: PP-4370/PP	1	1	1		
	M11484	MASK CBR, HEADWOUND PROTECTIVE	30	15	30		
	M11895	MASK CBR, PROTECTIVE FIELD	42	24	42		
	P38588	POWER SUPPLY: PP-2953/U	1	1	1		
	P40745	POWER SUPPLY: PP-4763/GRC	1	1	1		
		TRANSFORMERS ELECTRICAL: CONVERT 220 TO 110V AC	15	15	15		

SECTION III - EQUIPMENT

TOE 8-520

PAR NO.	LINE ITEM NUMBER	ITEM DESCRIPTION	QUANTITY			RMKS	FOR LOCAL USE
			FULL STRENGTH	REDUCED STRENGTH	TYPE "B" STRENGTH		
1	2	3	4	5	6	7	8
	Q19339	RADIAC SET AN/PDR-27	1	1	1		
		RADIACMETER IM-93/UD	2	2	2		
	Q21483	RADIACMETER IM-174/PD	3	3	3		
		CURTAINS, BLACKOUT SETS	11	11	11		
		RADIO, INTERCOM	11	11	11		
	Q32756	RADIO, SET: AN/GRC 106	1	1	1		
02		PROFESSIONAL SERVICE SECTION					
		MEDICAL EQUIPMENT SET FOREIGN SERVICE					
		AMBULANCE TRAIN WAR CAR	8	4	8		
		SAFE 2 SHELVES 1 DRAWER 2 COMPARTMENT 26 H 17 W 17 1/2 IN D	1	1	1		
		CANS, WATER, 5 GAL	110	55	110		
		LATRINES, PORTABLE	11	11	11		
		LITTERS, PATIENT	18	18	18		
	B7236	BLANKET, SET	8	8	8		
		CAN, GARBAGE, 12 GAL	16	8	16		
		STERILIZER, FIELD	1	1	1		
		X-RAY, FIELD, PORTABLE	1	1	1		
	E56611	MEDICAL EQUIPMENT SET MEDICAL LAB	1	1	1		
		BODY BAGS	20	10	20		
	A63252	ANESTHESIA, SET FIELD: PACKED IN CHEST	1	1	1		
		BENNETT, SUCTION MACHINE	4	4	4		
		SHEETS, DISPOSABLE, SETS	360	180	360		
	Z50497	PROCESSOR, X-RAY FILM	1	1	1		
	Z62400	REFRIGERATOR: SOLID STATE BIO POR.FLD 50/60 BZ	1	1	1		
	L65295	LIGHT SURGICAL FLD: 110 V AC/24V DC	1	1	1		
	M525241	MES CLEARING STATION	1	1	1		
		LITTERS PATIENT	18	18	18		
		STERILIZER FIELD	1	1	1		
		X-RAY FIELD PORTABLE	1	1	1		

SECTION III - EQUIPMENT

TOE 8-520

PAR NO.	LINE ITEM NUMBER	ITEM DESCRIPTION	QUANTITY			RMKS	FOR LOCAL USE
			FULL STRENGTH	REDUCED STRENGTH	TYPE "B" STRENGTH		
1	2	3	4	5	6	7	8
		RECAPITULATION CHEMICAL ITEMS					
		DETECTOR KIT CHEMICAL AGENT VGH M8	3	3	3	RMK	
		ENGINEER ITEMS					
		FLASHLIGHT PLASTIC RIGHT ANGLE 2 CELL MINIATURE FLANGE LAMP WATERTIGHT	27	20	27	RMK	
		MEDICAL ITEMS					
		BEDDING SET FOREIGN SERVICE AMBULANCE TRAIN PERSONNEL CAR	8	8	8		
		MEDICAL EQUIPMENT SET FOREIGN SERVICE AMBULANCE TRAIN KITCHEN-DINING- STORAGE CAR	1	1	1		
		MEDICAL EQUIPMENT SET FOREIGN SERVICE AMBULANCE TRAIN WARD CAR	8	4	8		
	Z50497	PROCESSOR, X-RAY FILM	1	1	1		
	Z62400	REFRIGERATOR: SOLID STATE BIO POR.FLD 50/60 BZ	1	1	1		
	L65295	LIGHT SURGICAL FLD: 110 V AC/24V DC	1	1	1		
	M52524	MES CLEARING STATION	1	1	1		
		LITTERS PATIENT	18	18	18		
	B7236	BLANKET SET BED	8	8	8		
		STERILIZER FIELD	1	1	1		
		X-RAY FIELD PORTABLE	1	1	1		
	E56611	MES: MEDICAL LAB	1	1	1		
	A63252	ANESTHESIA, SET FIELD: PACKED IN CHEST	1	1	1		
		BENNETT SUCTION MACHINE	4	4	4		
		SHEETS, DISPOSABLE SETS	360	180	360		
		ORDNANCE ITEMS					
		PISTOL AUTOMATIC CAL .45	3	3	3		
		RIFLE 5.56-MM SEMIAUTOMATIC, M16A1	20	10	20	RMK	
		QUARTERMASTER ITEMS					
		CLEANER VACUUM UPRIGHT FLOOR BRUSH HAND BRUSH ROUND BRUSH	2	2	2		
		DESK FIELD PLYWOOD 20 7/8 IN W 14 7/8 IN H 15 5/8 IN D	2	2	2		
		DESK FIELD PLYWOOD 22 5/8 IN W 25 7/8 IN H 14 1/2 IN D	2	2	2		
		FILING CABINET LETTER STEEL GRAY 5 DRAWERS H 28 IN D	3	3	3		
		FOOD PREPARATION AND SERVICE SET 441 COMPONENTS	1	1	1		

SECTION III - EQUIPMENT

TOE 8-520

PAR NO.	LINE ITEM NUMBER	ITEM DESCRIPTION	QUANTITY			RMKS	FOR LOCAL USE
			FULL STRENGTH	REDUCED STRENGTH	TYPE "B" STRENGTH		
1	2	3	4	5	6	7	8
		SAFE 2 SHELVES 1 DRAWER 2 COMPARTMENT 26 H 17 W 17 1/2 IN D	3	3	3		
		TYPEWRITER NONPTBL 13 IN PAPER SIZE 42 TO 44 KEYS ELITE TYPE	3	3	3		
		CANS WATER 5 GAL	110	55	110		
		LATRINES, PORTABLE	11	11	11		
		CAN, GARBAGE 12 GAL	16	8	16		
		BODY BAGS	20	10	20		
		CURTAINS, BLACKOUT SETS	11	11	11		
	R14154	RANGE OUTFIT FIELD GASOLINE	3	3	3		
	Y34027	WATCH WRIST: NONMAINTAINABLE	14	7	14		
	M11484	MASK CBR: HEADWOUND PROTECTIVE	30	15	30		
	M11895	MASK CBR: PROTECTIVE FIELD	42	24	42		
		TRANSFORMERS ELECTRICAL: TO CONVERT 220V TO 110V AC	15	15	15		
		SIGNAL ITEMS					
		CHARGER RADIAC DETECTOR PP-1578/PD	2	2	2		
	Q19339	RADIAC SET AN/PDR-27J	1	1	1		
		RADIACMETER IM-93/UD	2	2	2		
	Q21433	RADIACMETER IM-174/PD	3	3	3		
		RADIO, INTERCOM	11	11	11		
	Q32756	RADIO, SET: AN/GRC-106	1	1	1		
	A79381	ANTENNA GROUP: OE-254	1	1	1		
	C00601	CHARGER, RADIAC DETECTOR: PP-4370/PP	1	1	1		
	P38588	POWER, SUPPLY: PP-2953/U	1	1	1		
	P40745	POWER, SUPPLY: PP-4763/GRC	1	1	1		
	Q20798	RADIACMETER: IM-9/PD	1	1	1		
	Q78282	RADIO, SET CONTROL GROUP: AN/GRA-39	1	1	1		
	Q38119	RADIO, SET: AN/PRC-47	1	1	1		
	Q90063	RADIO, TELETYPEWRITER SET AN/GRC-46	1	1	1		
		REMARKS					
	800	MBI AS DIRECTED BY CO.					
	RMK	BASIS OF ISSUE REMARK APPEARS IN DETAIL PORTION OF THIS TOE.					

END

9-87

Dtic